

United States  
Department of  
Agriculture

Forest  
Service

Forest Pest  
Management

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Reply to: 3410

Date: June 15, 1993

Subject: Douglas-fir Tussock Moth in the Pinal Mountains

To: Forest Supervisor, Tonto National Forest

On June 9 and 10, Mike Stanghellini, biological technician, Forest Pest Management and I sampled tussock moth in the lower crowns of white fir trees in the Pinal Mountains and the Sierra Anchas in order to provide an estimate of the current status of Douglas-fir tussock moth populations in these two historic outbreak areas on the Tonto National Forest. Pheromone trap results in 1992 indicated that suboutbreak population levels of tussock moth were present in the Pinal Mountains, and low populations in the Sierra Anchas and along the Mogollon Rim. Spring larval sampling provides another estimate of population status, accounting for overwintering mortality. This letter documents on our findings and describes the biology and effects of the Douglas-fir tussock moth (DFTM).

Suboutbreak levels of DFTM are still present in the Pinal Mountains, Globe Ranger District. At these densities, the population has the potential to reach outbreak numbers in the next generation, next year. Some defoliation should be visible this year in white fir. Low populations are still present in the Sierra Anchas on the Pleasant Valley Ranger District. No visible defoliation is expected this year in this area. No larval sampling was conducted along the Mogollon Rim near Payson, due to the absence of DFTM in pheromone traps in 1992. No visible defoliation is expected in this area.

DFTM has two hosts in the Southwest, white fir and Douglas-fir. White fir is the preferred host in this region. DFTM produces one generation per year. Adults appear from late July into November. After mating, females lay egg masses. Eggs hatch in late May or early June, coinciding with bud burst and shoot elongation of host trees. Larvae crawl to the new growth and begin feeding. Larvae grow and feed, passing through six instars before pupating in July. Particularly the late instar larvae are very striking in appearance, possessing three long tufts of hairs, two behind the head and one at the end of the abdomen.

Natural controls usually keep populations at low levels. These include insect parasites, predators and birds. However, occasionally outbreaks develop often almost explosively. These usually last 3 - 4 years before collapsing due to natural causes, however some outbreaks have persisted in New Mexico for as long as 7 years.

The direct effect of larval feeding is defoliation. DFTM prefers to feed on the current years foliage, however, during outbreaks both current foliage, older foliage and even foliage of other trees and shrubs may be consumed. Heavy defoliation can result in both outright tree mortality and top-killing. Growth may also be retarded for several years.

Forest Supervisor, Tonto National Forest

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In late July we plan to place pheromone traps in the Pinal and Sierra Ancha Mountains and along the Mogollon Rim in order to get an estimate of expected population levels for 1994. Please contact me if you have any questions regarding this letter, my phone number is (602) 556-2074.

/s/ Jill L. Wilson

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